Unit

Unit 1 – Overview of Two Systems

Unit 2 - Looking at Landscapes

Unit 3 – Project Planning and Visuals

Unit 4 – Looking at Projects - Design Fundamentals and Strategies

Unit 5 – Environmental Factors

- Contrast Rating Process

- Writing EAs

Project Planning & VRM Page 20

Where the rubber meets the road!

What should you consider when planning and designing a project?

1 **Remember**
DESIGN FUNDAMENTALS. +

- Proper Siting and Location
- Reduction of Visibility
- Repetition of Form, Line, Color and Texture
- Reduction of Unnecessary Disturbance

2 **Employ**
DESIGN STRATEGIES. +

- Color Selection
- Earthwork
- Vegetation Manipulation
- Structures
- Placing Linear Alignments
- Reclamation/Restoration

3 **Consider**
ENVIRONMENTAL FACTORS. +

- Viewing Distance
- Angle of Observation
- Length of Time in View
- Relative Size or Scale
- Season of Use
- Light Conditions
- Recovery Time
- Spatial Relationships
- Atmospheric Conditions
- Motion

= **Minimal Visual Impacts**

Objective

Participants will apply the concepts, methods, and techniques to incorporate visual design considerations into project planning and design

Why? to reduce the contrast to form, line, color and texture on characteristic landscape

Visual Design Fundamentals

How: By reducing the project's contrast by:

- Proper Siting & Location
- Repeating Landscape Character Elements
- Reducing Unnecessary Surface Disturbance

Proper Siting - Considerations for Project Location

- Core Objective
- Engineering / Technical Requirements
- Cultural
- Wildlife
- **Visual**
- Other Resources / Issues

Proper Siting & Location Page 21

- Select location - minimizes adverse visual impacts
- Screen by topographic or vegetative features
- Locate away from visually sensitive areas
- Avoid landscape features that don't focus attention on the project (remember focal landscapes)

Note: Good location may benefit other resources, such as wildlife.....

Proper Siting & Location

Find the Water Tank

Proper Siting & Location

Good Location for Water Tank

Proper Siting & Location

Proper Siting & Location

Highly Visible Water Tank

Proper Siting & Location

- **Water Tank is Screened from View**

Proper Siting & Location

- **Gas Well Exposed on Skyline**

Proper Siting & Location

- **Gas Well Located Below Skyline**

Proper Siting & Location

Power Line Silhouetted Against Sky

Proper Siting & Location

- **Power Line Located Against Landforms**

Proper Siting & Location

- **Taking Advantage of Vegetative Screening**

Proper Siting & Location

- **Using Vegetative Screening to Minimize Visual Impacts of a Visitor Center**

NPS Visitor Center

Proper Siting and Location

Repeat Landscape Character Elements

Repeat Form Line Color Texture Page 22

- Avoid contrasts with forms in landscape
- Follow lines seen in the landscape
- Repeat dominant colors seen of landscape
- Use textures that similar to texture of landscape

Repeating Element "FORM" Pg 22

- **Openings repeat natural forms**

Repeating the element “Form”

- **Openings repeat natural forms**

Repeating the Element “FORM”

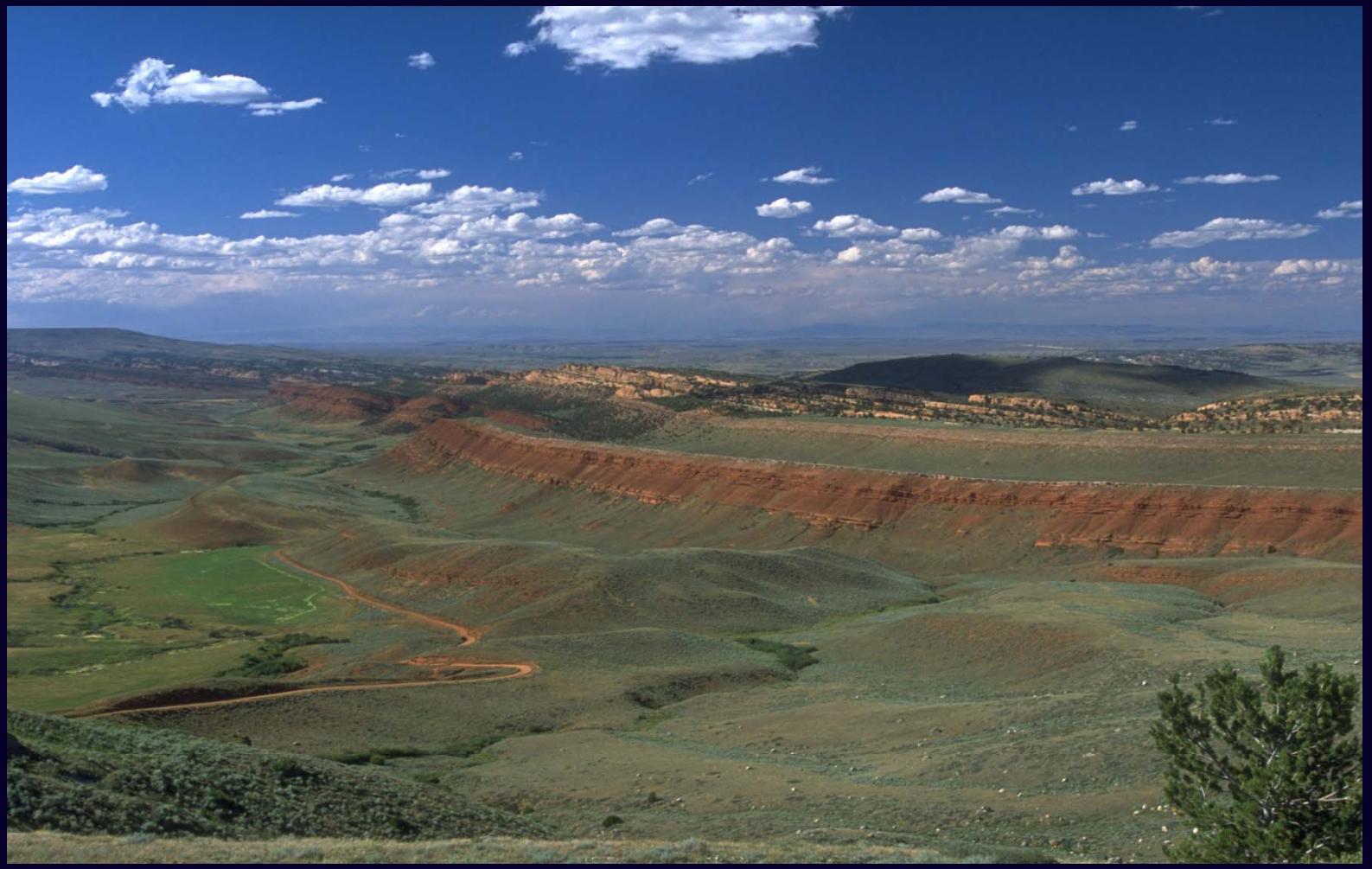
- **Water tank form similar to vegetation**

Repeating the Element “FORM”

- **Ski Area Development - Kemmerer**

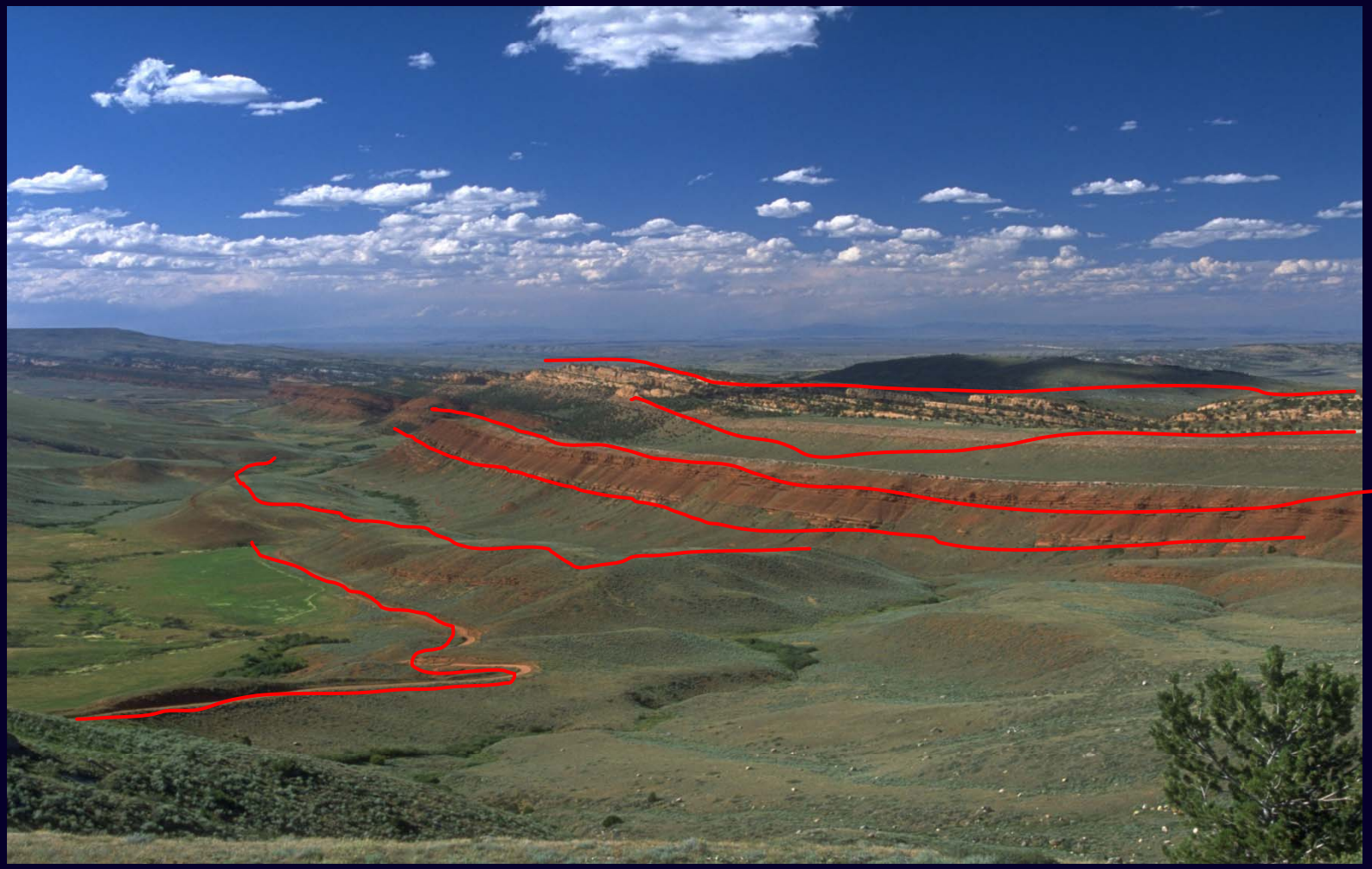
Repeating the Element “LINE”

- **Road in Red Canyon**



Repeating the Element “LINE”

- **Road in Red Canyon**



Repeating the element “LINE”

- **Roads fit lines in the landscape**

Repeating the Element “LINE”

- **Road does not fit line in landscape**

Not Repeating the element “Line”

Repeating the Element “LINE”

- **The road meanders & fits the landscape**

Repeating the Element “LINE”

- **Road & Location create minimal contrast**

Repeating the element “LINE”

- Another road that fits the landscape

Repeating the Element “COLOR” Page 22

- Color - very powerful design tool – one of least expensive project design factors if studied early in project’s concepts.
- Colors have often been too light
- Select a color that is 2-3 shades darker
- One color does NOT fit all. Don’t specify “forest green” or “desert tan”

Repeating the Element “COLOR”

- **Color Pallets are available from which to select “environmental” colors**

Selecting the Right Color

Contrast in COLOR

- **Material Site near Casper. The high degree of contrast draws attention to the disturbance**

Repeating the Element “Color”

Repeating the Element “COLOR”

- **Do these colors reduce contrast**

Repeating the element “COLOR”

- **Water Tank at Arches National Park**

Repeating the element “COLOR”

Repeating the Element “COLOR”

- **Highly effective use of color to minimize visual impacts for Power line development**

Repeating the Element “COLOR”

- **Recreation Site Design**

Repeating the Element “COLOR”

- **Using Dark Colors for O & G Facilities**

Repeating the Element “COLOR”

- **Using a dark color that matches dominant colors in the landscape**

Repeating the Element “COLOR”

Repeating the Element “COLOR”

Always use a color that is equal to or 2-3 shades DARKER than the surrounding colors

Color selected should duplicate the dominant color in the landscape

Is This Color Dark Enough?

Repeating the Element “COLOR”

- **Gas Development near Parachute, CO**

Repeating the Element “COLOR”

- **Same scene, better color**

Repeating the Element “COLOR”

- **Visualize the impact with the proper color**

Repeating the Element “COLOR”

- A structure very close to the highway

Desert Brown is Not a Good Choice

Repeating the Element “TEXTURE”

- **Lattice-type power poles have texture and allow light to pass through them**

Repeating Element “TEXTURE” Page 22

- **Proposed Pipeline Project**

Repeating Texture

- **Pipeline During Construction**

Repeating the Element “Texture”

- **Pipeline ROW With Restored Texture**

Repeating the Element “TEXTURE”

- **Recreating texture through reclamation**

Repeating the Element “TEXTURE”

- **Reclamation to Restore Texture**

Repeating the element “TEXTURE”

- **Using camouflage to simulate texture**

Reduce Unnecessary Disturbance Page 23

- Fit the project to the landscape
- Use smallest area necessary
- Share right-of-ways and special permit areas
  - Place along edge of road
  - Install under existing/proposed road facilities
- Retain and reuse topsoil
- Minimize road and pad width
- Avoid large side cuts
- Consolidate use of facilities and infrastructure
- Promote early reclamation
- Restore areas no longer needed or required

Reduce Unnecessary Disturbance

- Use the minimum road necessary

- **Use the smallest possible location**

- **It isn’t always necessary to clear the ROW**

- **Re-establish vegetation on the location**

- **Avoid Locations With Large Cuts & Fills**

- **Location With Minimal Cut & Fill**

- **Don’t cast excess material down-slope**

- **The I-70 Corridor of western Colorado**

Color Selection

- White colors = great contrast
- Use 2-3 shades darker
- Do not paint blue to match sky
- Paint galvanize steel - use Core-ten finishes

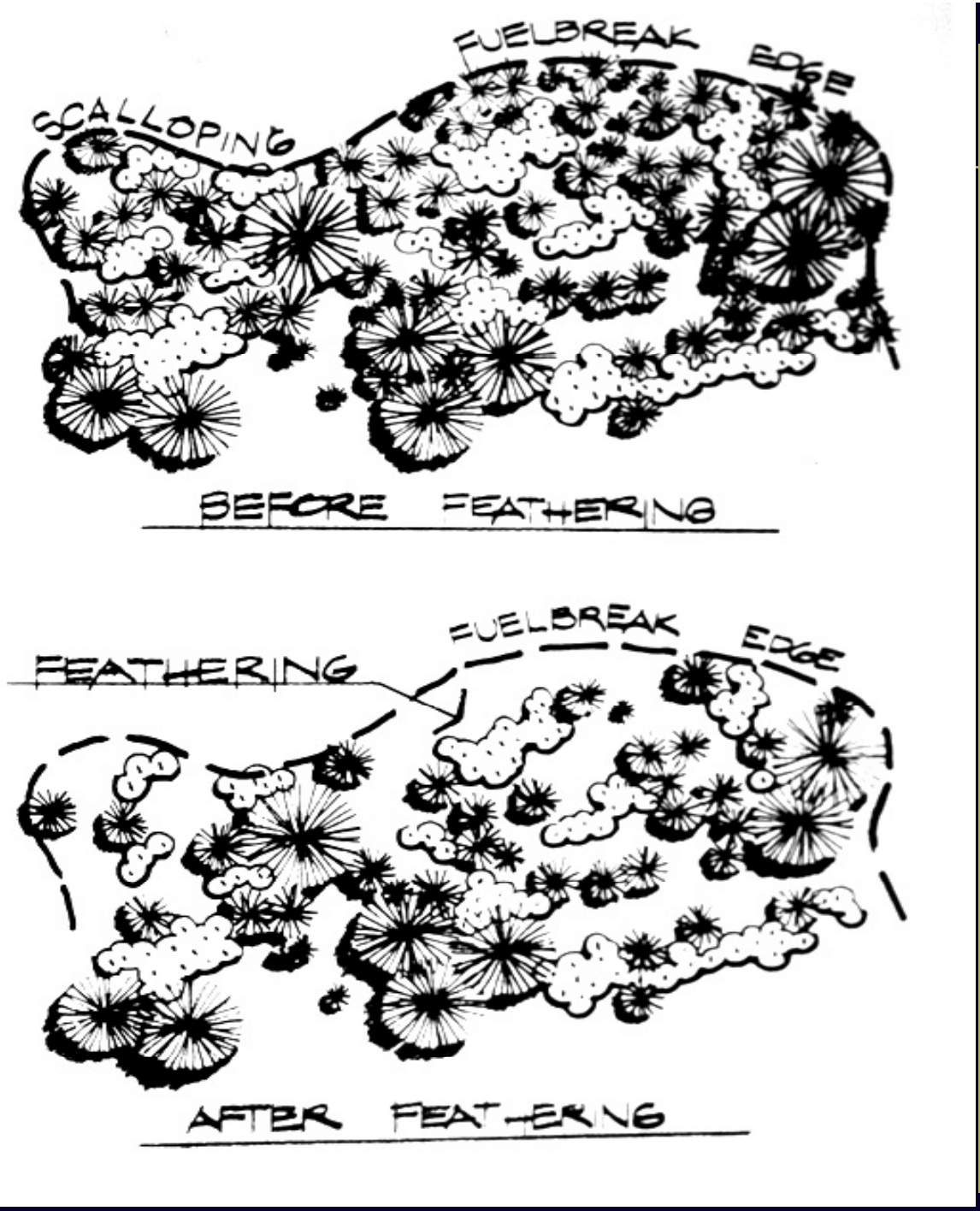
Earthwork

Page 25

Vegetative Manipulation Page 27

- Retain as much of veg as possible
- Scallop lines
- Partial clearning
- Feather/thin edges
- Dispose slash
- t

Method to reduce sharp edge effect

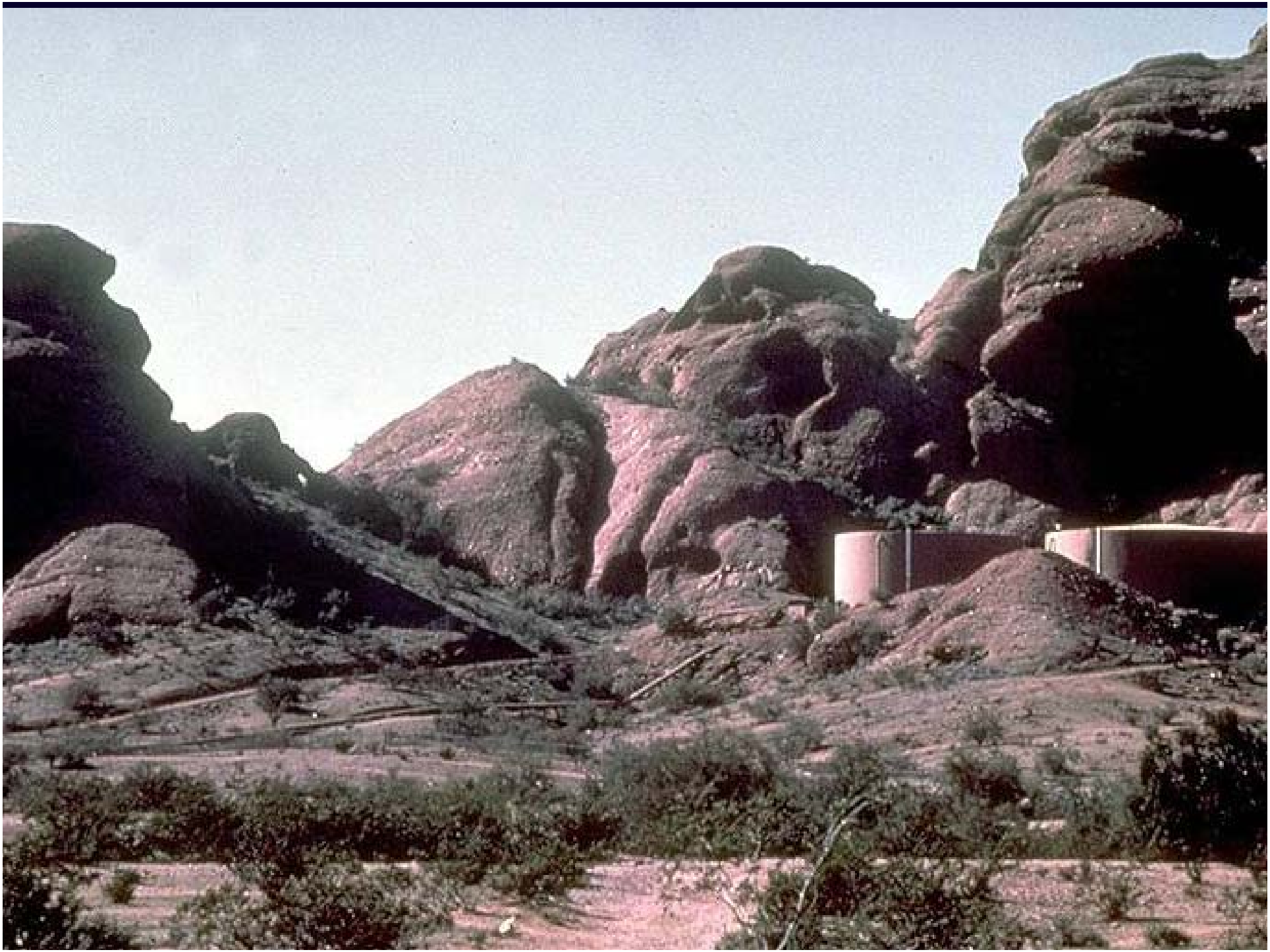


Structures

- Retain as vegetation
- Scallop lines
- Partial clearing
- Feather/thin edges
- Dispose slash

Remember: If can’t site structure to reduce contrast

- Color is less expensive tool to reduce contrast



Color is a Powerful Tool

Placing Linear Alignments

Roads, pipelines, & power lines should almost never be straight

Fit the alignment to the landscape

Repeat Landscape Character Elements

Don’t over-build

Placing Linear Alignments

- **There are lots of bad examples out there**

Linear Alignments

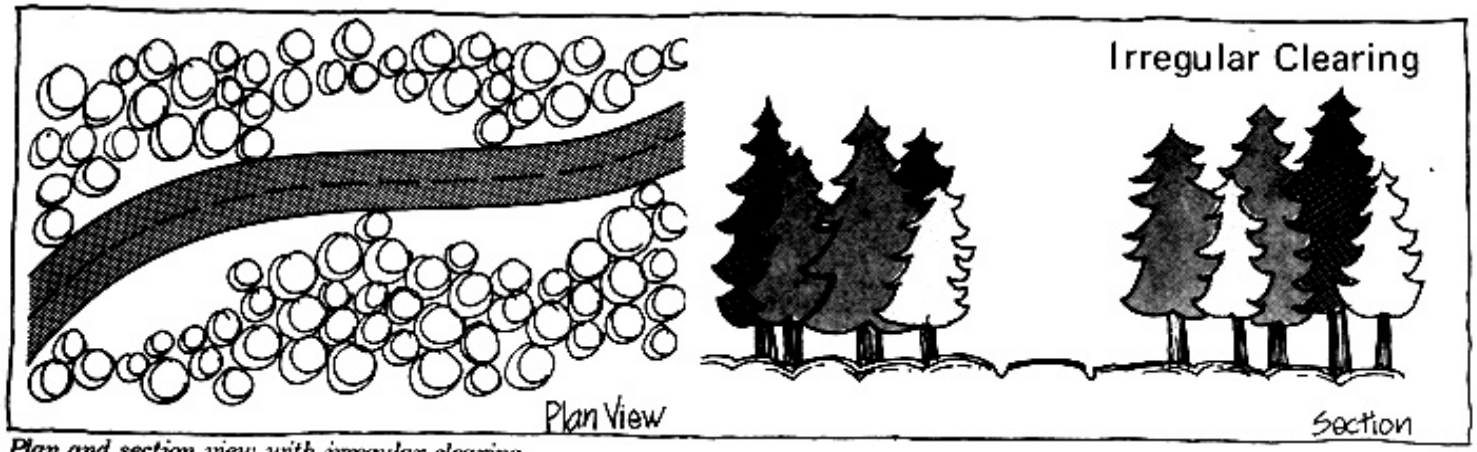
- **More examples**

Linear Alignments

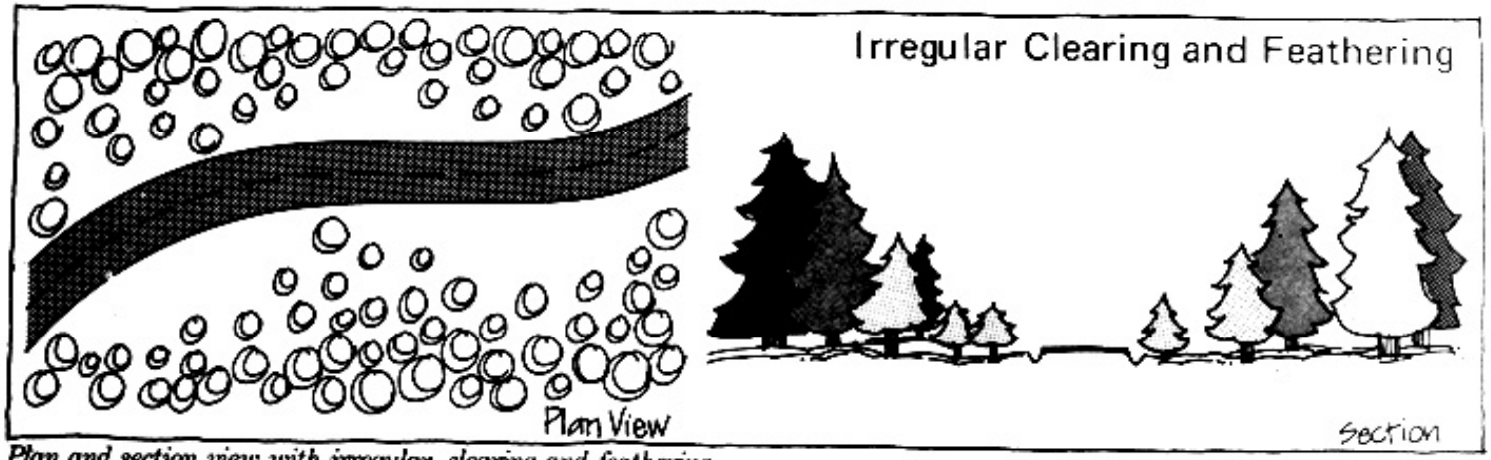
- **Ski Area Development (not quite so bad)**

Linear Alignments

- **Irregular Clearing AND Feathering ROW's**



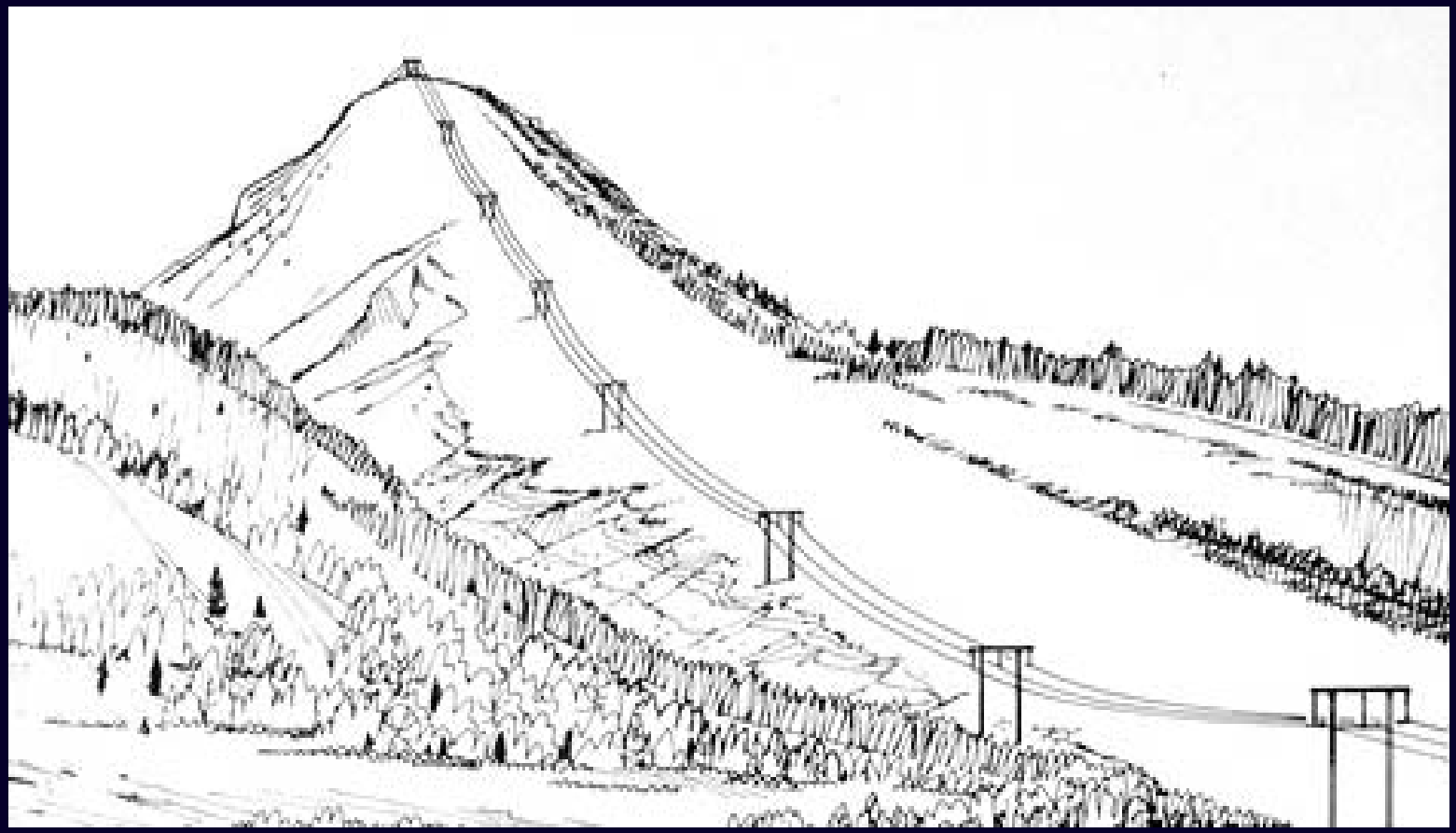
Plan and section view with irregular clearing



Plan and section view with irregular clearing and feathering

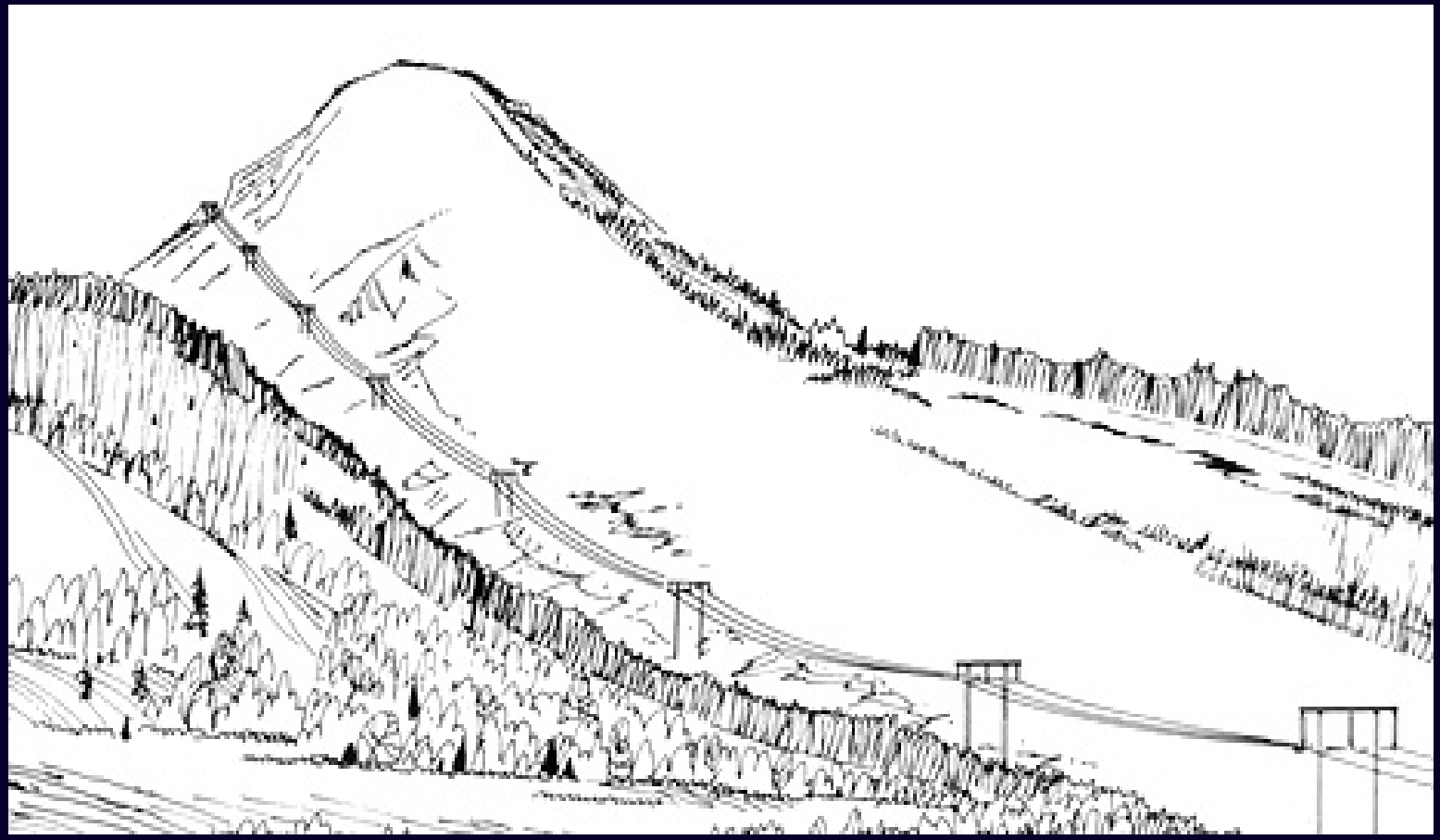
Linear Alignments

- **Linear Alignments: Design Considerations – Improper Location of Rights-of-way**



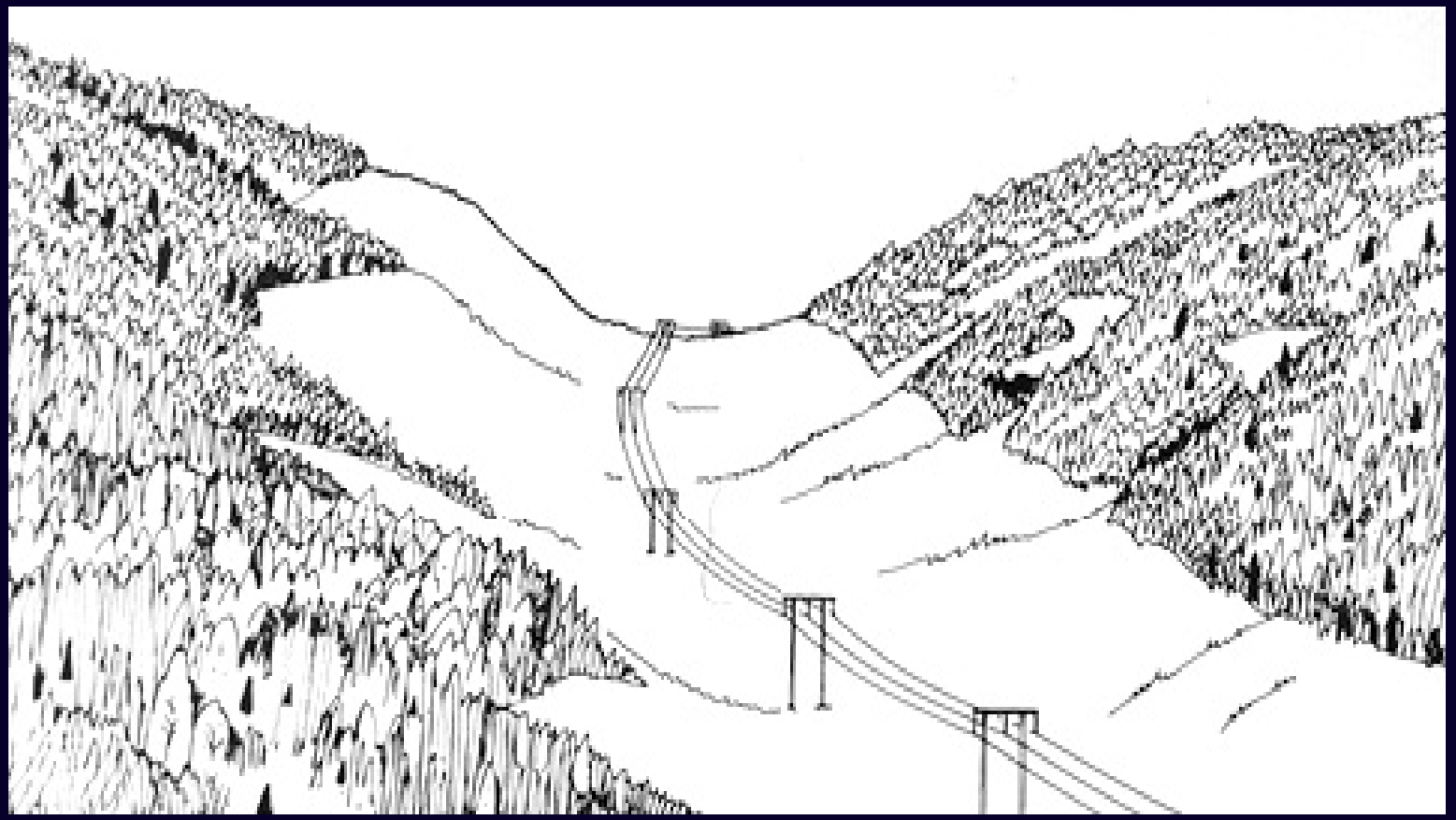
Linear Alignments

- **Design Considerations: Power line located below ridge; repeats elements**



Linear Alignments

- **Design Considerations: Power line located in opening; creates new line**

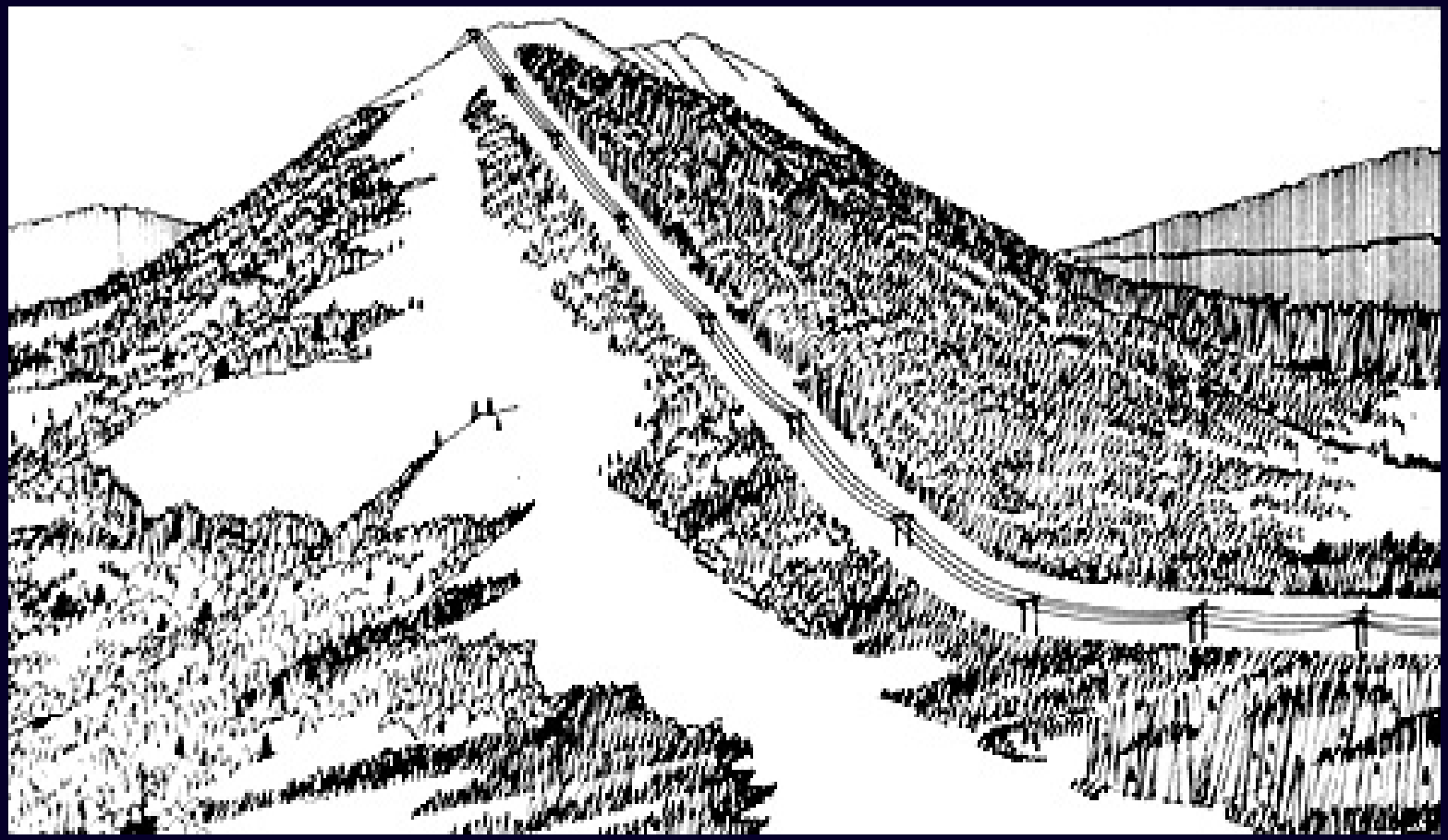


Linear Alignments

- **Design Considerations: Relocate ROW to edge of opening; repeat linear element**

Linear Alignments

- **Design Considerations?**



Linear Alignments

- **Repeat Elements**

Linear Alignments

- **Repeating the element “LINE”**

Linear Alignments

Superior Angle of Observation Enhances Visibility of Linear Alignments

Linear Alignments

Co-locate roads & pipelines

Communication Facilities

Design Strategy

Communication Facilities

- A Reminder of Visual Design Considerations

- Repeat elements
- Reduce Unnecessary Disturbance
- Proper Siting and Location

Communication Facilities

- Locate Support Buildings so they're Screened by Vegetation & Topography
- Locate Access Roads so they Repeat lines and/or are screened by Vegetation & Topography
- Paint Facilities an Appropriate Color
- Minimize Cuts & Fills
- Don't Cast Excavated Materials Downhill
- Choose Appropriate Building Materials
- Reduce & Minimize Silhouette on Skyline

Communication Facilities

- **Mitigation Measures?**

Communication Facilities

- View of Communication Site

Oil & Gas Development

Avoid Hilltops & Rims

Oil & Gas Development

Screen Locations, Choose Good Colors

Oil & Gas Development

- **Use Lower Profile Facilities**

Oil & Gas Development

Minimize Cut & Fill

Reclamation/Restoration Strategy Page 31

- Restore Landscape Character Elements
- Restore Native Vegetation
- Restoration/Reclamation Always Has a Visual Objective
- Restoration/Reclamation Should be Part of Initial Project Plan

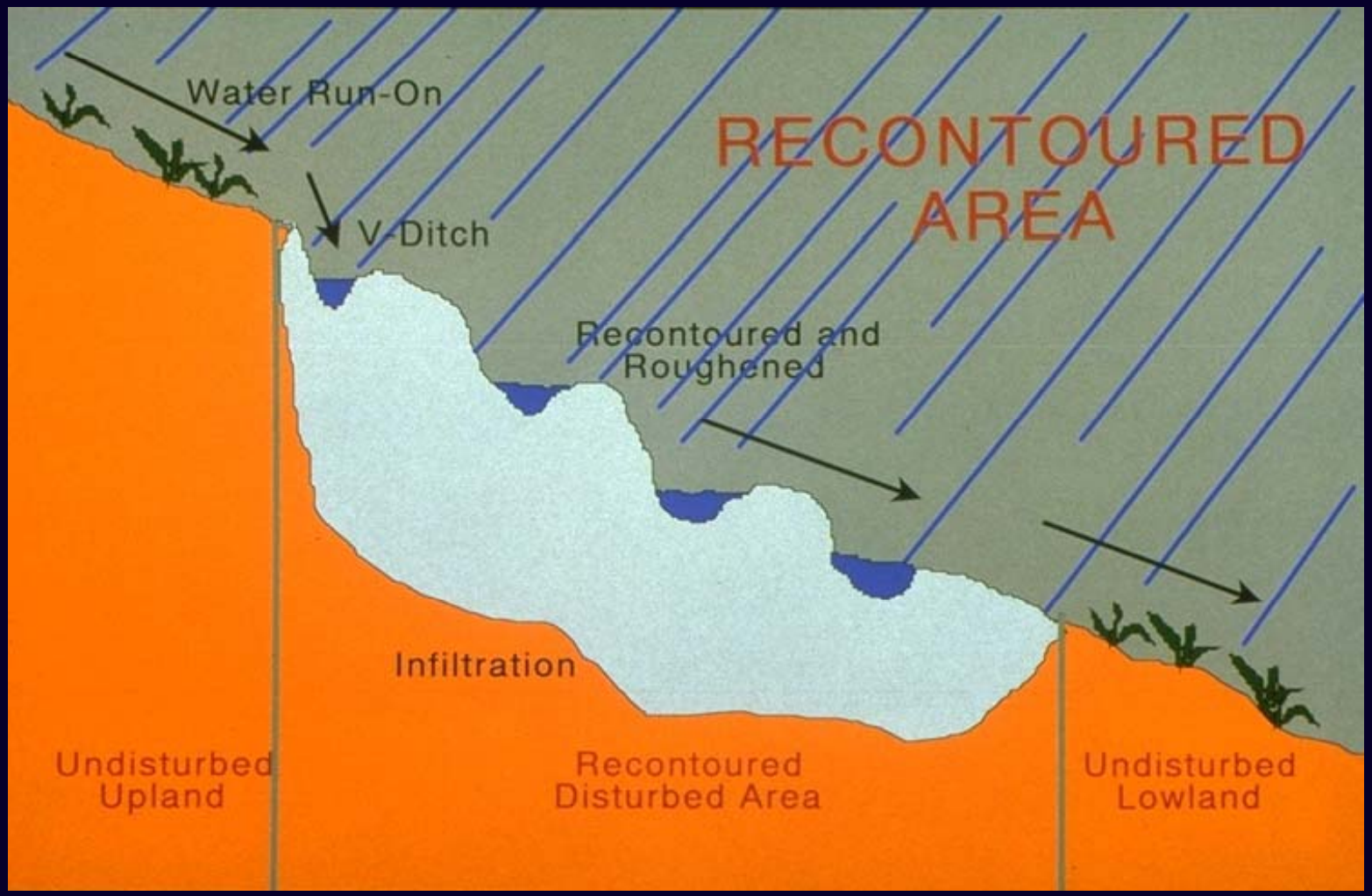
Reclamation Strategies Page 32

- Mulch cleared areas
- Furrow slopes
- Use planting holes on slopes-retain water

- Choose native plants
- Fertilize, mulch and water vegetation
- Replace soil, brush, rocks, forest debris,

Reclamation & Land Restoration

- **Schematic Diagram of Reclamation**



Reclamation Strategy

- **Green Mountain Road Closing and Rehab**

Reclamation & Land Restoration

- **Restore Form & Texture**

Reclamation & Land Restoration

- **Example 2: Restore Form & Texture**

Reclamation & Land Restoration

- **Pipeline Construction**

Reclamation & Land Restoration

- **Completed Pipeline Project**

Reclamation & Land Restoration

“Reclamation” of a Gas Well Access Road

This is NOT Visual Mitigation!

Reclamation & Land Restoration

Restoration of Form, Color, & Texture
Eliminates Linear Visual Impact

Assessment

It's Friday afternoon about 1 pm. Fred, your supervisor, calls you into his office and indicates that in one hour, you and he will meet with the project engineer of Tri-Region Coop. The Coop is building a 69 kv powerline cutting across 22 miles of public and National Forest that you manage.

Fred needs a list of your top 5 ways to design the line to reduce the visual impacts. Fred says "there is no negotiation on the centerline placement."

How Will You Apply to Your Job?

- ?
- ?
- ?
- ?
- ?

Summary

- Proper siting is key to reducing visual impacts - use existing landforms & vegetation

- Color is a powerful tool

- Earthwork – minimize scars on landform/veg

- Vegetation manipulation – retain as much of vegetation as possible

What guides our design? Repeat form, line, color texture of landscape